IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicant:	CHHEDA, et al.	Patent Application	
Application No.:	10/764,181	Group Art Unit:	3746
Filed:	January 23, 2004	Examiner:	Hamo, Patrick

For: REDUNDANT FAN SYSTEM IN A TURBO COOLER ASSEMBLY

APPEAL BRIEF

Table of Contents

	Page
Real Party in Interest	1
Related Appeals and Interferences	2
Status of Claims	3
Status of Amendments	4
Summary of Claimed Subject Matter	5
Grounds of Rejection to Be Reviewed on Appeal	7
Argument	8
Conclusion	19
Appendix - Clean Copy of Claims on Appeal	20
Appendix – Evidence Appendix	24
Appendix – Related Proceedings Appendix	25

I. Real Party in Interest

The assignee of the present application is Hewlett-Packard Development Company, L.P.

II. Related Appeals and Interferences

There are no related Appeals or Interferences.

III. Status of Claims

Claims 1-22 are pending. Claims 1-22 are rejected. This Appeal involves Claims 1-22.

IV. Status of Amendments

All proposed amendments have been entered. An amendment subsequent to the Final Action has not been filed.

V. Summary of Claimed Subject Matter-

Independent Claims 1, 11 and 18 of the present application pertain to embodiments associated with fan systems.

As recited in Claim 1, a "fan cooling system with high availability" is described. This embodiment is depicted at least in Figures 1 and 2. Redundant fan system 100 of Figure 1 includes fans 101 and 102 (page 4, lines 14-17). Fan motors 201 and 202 of Figure 2 drive fans 101 and 102 of Figure 1, respectively (page 5, lines 4-22). "[F]ans 101 and 102 may be coupled with fan motors 201 and 202 respectively" (page 10, lines 10-11). "The fans are configured so that the outside air 130, 131 is impelled within the fan along respective paths 132, 133 by a duct system 110 which conveys the air flow 134 to the heat sink 120 mounted on the microprocessor" (page 4, lines 17-19). Moreover, "[i]n embodiments of the present invention, fan motors 201 and 202 are controlled by varying the voltage made available to them by the power control subsystem 203" (page 6, lines 5-7).

As recited in Claim 11, a "redundant fan cooling system" is described. This embodiment is depicted at least in Figures 1 and 2. Redundant fan system 100 of Figure 1 includes fans 101 and 102 (page 4, lines 14-17). Fan motors 201 and 202 of Figure 2 drive fans 101 and 102 of Figure 1, respectively (page 5, lines 4-22). "In embodiments of the present invention, the fan motors driving fans 101 and 102 are removably coupleable from turbo cooling system 100" (page 5, lines 11-12). "The fans are configured so that the outside air 130, 131 is impelled within the fan along respective paths 132, 133 by a duct system 110 which conveys the air flow 134 to the heat sink 120 mounted on the microprocessor" (page 4, lines 17-19). Moreover, "[i]n embodiments of the present invention, fan motors 201 and 202 are controlled by varying the voltage made available to them by the power control subsystem 203" (page 6, lines 5-7). "In embodiments of the present invention, controller 204 generates commands to comparator 206 to compare the performance metrics from tachometers 211 and 212 and/or current-measuring device 205 for each motor with pre-determined performance parameters" (page 8, line 34, through page 9, line 3). "In embodiments of the present invention, controller 204 instructs power control subsystem 203 to increase the voltage to the remaining operative motor (e.g., fan motor 202), thereby increasing the fan speed to compensate for the loss due to the failure and de-activation of fan motor 201. In another

embodiment, the increase in voltage to fan motor 202 is initiated automatically in response to shutting down the power to fan motor 201" (page 9, lines 27-32).

As recited in Claim 18, a "method for providing redundant availability in a fan system" is described. This embodiment is depicted at least in Figures 1, 2 and 5. "In step 510 of Figure 5, a plurality of fan motors are coupled with respective fans. As discussed above with reference to Figures 1-3, fans 101 and 102 may be coupled with fan motors 201 and 202 respectively" (page 10, lines 8-11). Redundant fan system 100 of Figure 1 includes fans 101 and 102 (page 4, lines 14-17). Fan motors 201 and 202 of Figure 2 drive fans 101 and 102 of Figure 1, respectively (page 5, lines 4-22). "In step 520 of Figure 5, a duct is configured to guide air flow from the plurality of fans to a heat sink" (page 10, lines 14-15). "The fans are configured so that the outside air 130, 131 is impelled within the fan along respective paths 132, 133 by a duct system 110 which conveys the air flow 134 to the heat sink 120 mounted on the microprocessor" (page 4, lines 17-19). "In step 530 of Figure 5, the performance of each of the fan motors is compared with a pre-determined parameter" (page 10, lines 19-20). "In step 540 of Figure 5, a fan motor speed is selected for one of the remaining fan motors based upon the comparing of step 530" (page 10, lines 27-28).

VI. Grounds of Rejection to Be Reviewed on Appeal

1. Claims 1, 3, 18 and 19 stand rejected under 35 U.S.C. §102(b) as being anticipated by United States Patent 5,793,608 by Winick et al., hereinafter referred to as "Winick."

2. Claims 2 and 11 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Winick, in view of United States Patent 6,299,408 by Bhatia, et al., hereinafter referred to as "Bhatia."

3. Claims 1-9, 11-16 and 18-22 stand rejected under 35 U.S.C. §103(a) as being unpatentable over United States Patent 5,414,591 by Kimura et al., hereinafter referred to as "Kimura," in view of United States Patent 6,791,836 by Cipolla et al., hereinafter referred to as "Cipolla."

4. Claims 10 and 17 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Kimura in view of Cipolla, further in view of United States Patent Application Publication 2003/0112600 by Olarig et al., hereinafter referred to as "Olarig."

VII. Argument

1. Whether Claims 1, 3, 18 and 19 are Anticipated by Winick Under 35 U.S.C. § 102(b)?

The Final Office Action mailed August 8, 2008, hereinafter referred to as the "instant Office Action," states that Claims 1, 3, 18 and 19 are rejected under 35 U.S.C. § 102(b) as being anticipated by Winick. Appellants have reviewed Winick and respectfully submit that the embodiments of the present invention as recited in Claims 1, 3, 18 and 19 are not anticipated by Winick for at least the following rationale.

Appellants respectfully direct the Examiner to independent Claim 1 that recites that an embodiment of the present invention is directed to (emphasis added):

> A fan cooling system with high availability comprising:
> a first fan coupled with a first motor for creating a first air flow;
> a second fan coupled with a second motor for creating a second air flow;
> a duct system for conveying said first air flow and said second air flow to at least one heat sink; and
> a control system coupled with said first fan motor and said second fan motor.

Independent Claim 18 recites a similar embodiment. Furthermore, Claim 3 that depends from independent Claim 1 and Claim 19 that depends from independent Claim 18 also include these embodiments.

MPEP §2131 provides:

> "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). ... "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim.

Appellants respectfully submit that Winick does not teach or suggest each element of the claimed embodiments in the manner set forth in independent Claims 1 and 18. In particular, Appellants respectfully submit that Winick does not teach, describe or suggest "a duct system

for conveying said first air flow and said second air flow to at least one heat sink" (emphasis added) as recited in independent Claim 1, and the similar embodiment of independent Claim 18.

With reference to FIG. 1, Appellants understand Winick to disclose a cooling system including fans 46 within an enclosure 11. Moreover, Winick recites that "[a]n enlarged plenum 24 or input-output section is created within the enclosure 11" (col. 3, lines 3-5). In particular, Appellants respectfully submit that Winick does not teach, describe or suggest that the air flow generated by both fans 46 is conveyed over any of heats sinks 38, 39 or 43. In contrast, Appellants understand that the air flow generated by a single fan 46 is conveyed over heat sinks 38, 39 or 43.

Moreover, Appellants respectfully submit that plenum 24 is not equivalent to the claimed duct system. In particular, plenum 24 does not "convey" air flow over heats sinks 38, 39 or 43, as recited in Claim 1. Furthermore, plenum 24 does not "guide" air flow over heats sinks 38, 39 or 43, as recited in Claim 18. Therefore, Appellants respectfully submit that plenum 24 does not anticipate the claimed "duct system" of Claim 1 or the claimed "duct to guide" of Claim 18.

Appellants note that the instant Office Action also asserts that "the arrows in fig. 1 are merely illustrative and the examiner would like to point out that Winick discloses no dividers of any kind within plenum 24 that would differentiate the space from which the two fans draw air so that air drawn into either fan passes over the heat sinks" (instant Office Action; page 7, lines 2-5). Appellants respectfully disagree with this assertion. Appellants submit that Winick does not disclose that the arrows are "merely illustrative" as asserted. Accordingly, Appellants respectfully maintain that that plenum 24 does not anticipate the claimed "duct system" of Claim 1 or the claimed "duct to guide" of Claim 18.

Appellants respectfully submit that Winick does not show the identical invention in as complete detail as contained in the claim, and that the elements of Winick are not arranged as required by the claims. Therefore, Appellants respectfully submit that Winick does not satisfy a *prima facie* case of anticipation of Claims 1 and 18.

Accordingly, Appellants respectfully assert that Winick does anticipate the claimed embodiments of the present invention as recited in independent Claims 1 and 18, that these claims overcome the rejection under 35 U.S.C. § 102(b), and that these claims are thus in a condition for allowance. Therefore, Appellants respectfully submit that Winick also does not anticipate the additional claimed embodiments of the present invention as recited in Claim 3 that depends from independent Claim 1 and Claim 19 that depends from independent Claim 18 also overcome the rejection under 35 U.S.C. § 102(b), and are in a condition for allowance as being dependent on an allowable base claim.

2. Whether Claims 2 and 11 are Unpatentable Under 35 U.S.C. § 103(a) by Winick in view of Bhatia.

The instant Office Action states that Claims 2 and 11 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Winick in view of Bhatia. Appellants have reviewed the Winick and Bhatia and respectfully submit that the embodiments of the present invention as recited in Claims 2 and 11 are patentable over the combination of Winick and Bhatia for at least the following rationale.

Claim 2 is dependent on independent Claim 1 and includes the recitations of independent Claim 1. Hence, by demonstrating that independent Claim 1 is patentable over Winick and Bhatia, it is also demonstrated that Winick and Bhatia do not show or suggest the embodiments of Claim 2.

"As reiterated by the Supreme Court in *KSR*, the framework for the objective analysis for determining obviousness under 35 U.S.C. 103 is stated in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). Obviousness is a question of law based on underlying factual inquiries" including "[a]scertaining the differences between the claimed invention and the prior art" (MPEP 2141(II)). "In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious" (emphasis in original; MPEP 2141.02(I)). Appellants note that "[t]he prior art reference (or references when combined) need not teach or suggest all the claim limitations, however, Office personnel must explain why the difference(s) between the prior art and the claimed

invention would have been obvious to one of ordinary skill in the art" (emphasis added; MPEP 2141(III)).

First, as presented above, Appellants respectfully submit that Winick does not teach, describe or suggest "a duct system for conveying said first air flow and said second air flow to at least one heat sink" (emphasis added) as recited in independent Claim 1. For the same rationale, Appellants respectfully submit that Winick does not teach, describe or suggest "a ducting system for conveying air flow from each of said fans to a heat dissipating device" (emphasis added) as recited in independent Claim 11.

Second, as presented above, Appellants respectfully submit that the plenum of Winick is not equivalent to the claimed "duct system" recited in independent Claim 1. Therefore, for the same rationale, Appellants respectfully submit that the plenum of Winick is not equivalent to the claimed "ducting system" recited in independent Claim 11.

Third, Appellants respectfully note that "[a] prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention" (emphasis in original; MPEP 2141.02(VI); *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984)).

With reference to FIG. 1, Appellants understand Winick to disclose that each fan 46 directed air over different electronic components. Specifically, FIG. 1 includes arrows that appear to indicate the direction of airflow. In particular, these arrows appear to indicate that each fan 46 directs air over distinct and different electronic components. Moreover, due to the placement of fans 46 and the electronic components, Appellants respectfully submit that Winick teaches away from directing the air flow from both fans 46 over the same electronic components.

Fourth, Appellants respectfully submit that Bhatia does not overcome the shortcomings of Winick. Appellants respectfully submit that Bhatia, alone or in combination with Winick, does not show or suggest "a duct system for conveying said first air flow and said second air flow to at least one heat sink" (emphasis added) as recited in independent

Claim 1 or "a ducting system for conveying air flow from each of said fans to a heat dissipating device" (emphasis added) as recited in independent Claim 11.

Fifth, Appellants respectfully submit that Bhatia does not teach that which it is purported to teach. With reference to FIG. 8, Appellants understand Bhatia to disclose that "the blade driving mechanism is a flexible shaft 805. Such a flexible shaft also permits variation of the angle between the motor 210 and the blade portion 710" (emphasis added; col. 6, lines 12-14). Appellants respectfully submit that Bhatia does not teach, describe or suggest that motor 210 is removably coupleable with blade portion 710, as asserted. Specifically, Appellants respectfully submit that Bhatia does not teach, describe or suggest "said first motor and said second motor are removably coupleable with said fan cooling system" (emphasis added) as recited in Claim 2 or "a plurality of variable-speed fan motors removably coupleable with said redundant fan cooling system" (emphasis added) as recited in Claim 11.

Accordingly, Appellants respectfully submit that the claimed embodiments of the present invention as recited in independent Claims 1 and 11 are patentable over the combination of Winick and Bhatia, that these claims overcome the rejection under 35 U.S.C. § 103(a), and that these claims are thus in a condition for allowance. Therefore, Appellants respectfully submit that Claim 2 that depends from independent Claim 1 is also patentable over the combination of Winick and Bhatia, that this claim also overcomes the rejection under 35 U.S.C. § 103(a), and is in a condition for allowance as being dependent on an allowable base claim.

3. Whether Claims 1-9, 11-16 and 18-22 are Unpatentable Under 35 U.S.C. § 103(a) by Kimura in view of Cipolla.

The instant Office Action states that Claims 1-9, 11-16 and 18-22 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Kimura in view of Cipolla. Appellants have reviewed Kimura and Cipolla and respectfully submit that the embodiments of the present invention as recited in Claims 1-9, 11-16 and 18-22 are patentable over the combination of Kimura and Cipolla for at least the following rationale.

Appellants respectfully assert that the combination of Kimura and Cipolla does not teach, describe or suggest the invention as claimed because the combination of the Kimura and Cipolla does not satisfy the requirements of a *prima facie* case of obviousness.

First, Appellants respectfully submit that Kimura does not teach, describe or suggest "a duct system for conveying said first air flow and said second air flow to at least one heat sink" (emphasis added) as recited in independent Claim 1, and similar recitations of independent Claims 11 and 18. With reference to FIG. 4, Kimura recites "[o]ne casing 9 contains three magnetic disk drives 1, and partitions 10 for forming ducts are provided between the magnetic disk drives 1. Each duct is formed with an inlet 11 and an outlet 12 of cooling air, and a blower fan 13, which is one example of blast means, is provided in the inlet 11" (col. 5, lines 9-14). Specifically, "[s]upposing that all the fans 13a, 13b are normally functioning now, pressures of cooling air flows 15 passing the magnetic disk drives 1a, 1b will have a uniform distribution from the inlet 11a to the outlet 12a. Therefore, even if the ducts 10 include the openings 14, the cooling air flows 15 will not leak from the adjacent magnetic disk drives 1 by way of these openings 14. For this reason, when all the fans 13 are normally rotating, the above-described structure of the casing 9 enables cooling of the magnetic disk drives 1 to be conducted effectively without causing troubles, thereby suppressing their temperature rises" (emphasis added; col. 5, lines 23-34).

Therefore, Appellants respectfully submit that Kimura does not teach, describe or suggest "a duct system for conveying said first air flow and said second air flow to at least one heat sink" (emphasis added) as recited in independent Claim 1, and similar recitations of independent Claims 11 and 18. Moreover, by disclosing that air flows do not leak between adjacent disk drives during normal functions, Appellants respectfully submit that Kimura teaches away from the claimed embodiment.

Second, Appellants respectfully submit that Cipolla does not overcome the shortcomings of Kimura. Appellants respectfully submit that Cipolla, alone or in combination with Kimura, does not show or suggest "a duct system for conveying said first air flow and said second air flow to at least one heat sink" (emphasis added) as recited in independent Claim 1, and the similar embodiments of independent Claims 11 and 18.

Third, Appellants respectfully note that "[a] prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention" (emphasis in original; MPEP 2141.02(VI); *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984)). Moreover, Appellants note that "[i]f the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious" (emphasis added) (MPEP 2143.01; *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)). Moreover, "[i]f the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed amendment" (emphasis added) (MPEP 2143.01; *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)).

Appellants understand Kimura to disclose "[a] magnetic disk storage system in which magnetic disk drives can be cooled effectively, and even if a blast device for one of [the] magnetic disk drives fall into trouble or cease operation, a temperature rise of this magnetic disk drive can be suppressed to the minimum. For this purpose, in the magnetic disk storage system containing a plurality of magnetic disk drives, [blast] devices [are] provided for each of the disk drives, and the disk drives are separated by partitions in which openings are formed so that the cooling air can be passed between adjacent magnetic disk drives" (Abstract). Specifically, Appellants understand Kimura to teach that in the event of the failure of a blast device, e.g. a fan, the corresponding magnetic disk drive can still receive some cooling air through an opening in a partition to separating an adjacent disk drive.

In particular, Appellants respectfully submit that the magnetic disk storage system of Kimura includes blast devices that are not independently controllable. Kimura specifically discloses a system in which failure of a blast device is compensated for, to some extent, by providing openings in partitions separating adjacent magnetic disk drives. Moreover, the system of Kimura does not require detection of the failure by a processing device. Rather, the supplemental cooling is provided based on the pressure of the airflow, in that the pressure is lower on the side of the partition associated with the failed blast device, allowing air to pass through the opening from an adjacent fan (see col. 5, lines 35-61). Indeed, Appellants respectfully submit that intended purpose of Kimura is to provide the supplemental cooling

passively. In other words, Appellants submit that the principle of operation of Kimura is to provide passive supplemental cooling in the event of a blast device failure.

Appellants note that while an embodiment of Kimura does provide a detector for detecting the operational condition of a fan, this detection is only used for informing a user of a failed fan for replacement. In particular, as shown in Figure 26, signal line 22 only provides signal transmission in one direction, from detector 21 to control circuit 23 for providing some type of output signal (col. 14, lines 45-62).

In contrast, Appellants understand Cipolla to disclose a fan module including two or more individual fans and a processor for controlling the two or more individual fans (Abstract). With reference to Figure 4 of Cipolla, "[p]referably, the processor 116 controls the speed of each fan 102 when the temperature detected falls below a predetermined temperature set point. However, the processor 116 can also control the fans 102 based upon a predetermined relationship between the fan speed and temperature" (col. 5, lines 1-5). Appellants understand Cipolla to teach that processor 116 can control the speed of each fan independently, based on a current state of the operating environment in which a particular fan 102 is located. In particular, Appellants respectfully submit that intended purpose of Cipolla is to provide a fan module in which the individual fans can be controlled based on the operating environment. In other words, Appellants submit that the principle of operation of Cipolla is to provide active control of the fans, and thus the operating environment in which the fans are operational.

Appellants respectfully submit that modifying Kimura in the manner suggested by the Examiner would render Kimura inoperable for its intended purpose. For instance, Kimura discloses a system in which fan failures are passively accounted for by providing openings in partitions separating adjacent magnetic disk drives. In contrast, Cipolla discloses a fan module for actively controlling individual fans based on operating conditions.

As recited above, "[a] prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention" (emphasis in original; MPEP 2141.02(VI); *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984)). Appellants respectfully

submit that by modifying Kimura in the manner suggested in the instant Office Action, the passive control of the fans would be eliminated, thus rendering Kimura inoperable for its intended purpose.

Fourth, Appellants respectfully submit that "said first motor and said second motor are removably coupleable with said fan cooling system" (emphasis added) as recited in Claim 2 or "a plurality of variable-speed fan motors removably coupleable with said redundant fan cooling system" (emphasis added) as recited in Claim 11, are subject to legal precedent as the source of supporting rationale under MPEP § 2144.04. MPEP § 2144.04 recites in part "[a]s discussed in MPEP § 2144, if the facts in a prior legal decision are sufficiently similar to those in an application under examination, the examiner may use the rationale used by the court" (emphasis added; MPEP § 2144.04)

Appellants respectfully submit that the cited passage of MPEP § 2144.04(V)(C), directed toward a lipstick holder with a removable cap, is not sufficiently similar to those in the instant application. Specifically, the facts of *In re Dulberg*, 289 F.2d 522, 523, 129 USPQ 348, 349 (CCPA 1961), as recited in MPEP § 2144.04(V)(C), are as follows: "The claimed structure, a lipstick holder with a removable cap, was fully met by the prior art except that in the prior art the cap is 'press fitted' and therefore not manually removable. The court held that 'if it were considered desirable for any reason to obtain access to the end of [the prior art's] holder to which the cap is applied, it would be obvious to make the cap removable for that purpose.'" (emphasis added). Appellants respectfully submit that the facts if *In re Dulberg*, the desirability of obtaining access to the end of a lipstick holder, are not sufficiently similar to those of the instant application. Therefore, Appellants respectfully submit it would not have been "obvious to one of ordinary skill in the art at the time of the invention to make the motor removable from the fan cooling system", as asserted.

In view of the combination of Kimura in view of Cipolla not satisfying the requirements of a *prima facie* case of obviousness, Appellants respectfully submit that independent Claims 1, 11 and 18 overcome the rejection under 35 U.S.C. § 103(a), and that these claims are thus in a condition for allowance. Appellants respectfully submit the combination of Kimura in view of Cipolla also does not teach or suggest the additional claimed embodiments of the present invention as recited in Claims 2-9 that depend from

independent Claim 1, Claims 12-16 that depend from independent Claim 11, and Claims 19-22 that depend from independent Claim 18. Therefore, Appellants respectfully submit that Claims 2-9, 12-16 and 19-22 also overcome the rejection under 35 U.S.C. § 103(a), and are in a condition for allowance as being dependent on an allowable base claim.

4. Whether Claims 10 and 17 are Unpatentable Under 35 U.S.C. § 103(a) by Kimura in view of Cipolla, further in view of Olarig.

The instant Office Action states that Claims 10 and 17 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Kimura, in view of Cipolla, further in view of Olarig. Appellants have reviewed Kimura , Cipolla and Olarig and respectfully submit that the embodiments of the present invention as recited in Claims 10 and 17 are patentable over the combination of Kimura , Cipolla and Olarig for at least the following rationale.

Claim 10 is dependent on independent Claim 1 and includes the recitations of independent Claim 1 and Claim 17 is dependent on independent Claim 11 and includes the recitations of independent Claim 11. Hence, by demonstrating that independent Claims 1 and 11 are patentable over Kimura , Cipolla and Olarig, it is also demonstrated that Kimura , Cipolla and Olarig do not show or suggest the embodiments of Claims 10 and 17.

Appellants respectfully assert that the combination of Kimura , Cipolla and Olarig rig does not teach, describe or suggest the invention as claimed because the combination of the Kimura , Cipolla and Olarig does not satisfy the requirements of a *prima facie* case of obviousness. So as to not unnecessarily duplicate arguments, Appellants respectfully direct the Examiner to the remarks accompanying the discussion of the rejection of Claims 1-9, 11-16 and 18-22 above for a detailed argument as to the lack of a *prima facie* case of obviousness. Moreover, Appellants respectfully submit that Olarig does not overcome the shortcomings of Cipolla and Kimura in providing supporting a *prima facie* case of obviousness.

In view of the combination of Kimura in view of Cipolla, further in view of Olarig, not satisfying the requirements of a *prima facie* case of obviousness, Appellants respectfully submit that independent Claims 1 and 11 overcome the rejection under 35 U.S.C. § 103(a), and that these claims are thus in a condition for allowance. Appellants respectfully submit

the combination of Kimura in view of Cipolla, further in view of Olarig, also does not teach or suggest the additional claimed embodiments of the present invention as recited in Claim 10 that depends from independent Claim 1 and Claim 17 that depends from independent Claim 11. Therefore, Appellants respectfully submit that Claims 10 and 17 also overcome the rejection under 35 U.S.C. § 103(a), and are in a condition for allowance as being dependent on an allowable base claim.

Conclusion

Appellants respectfully submit that Claims 1, 3, 18 and 19 are not anticipated by Winick, that Claims 2 and 11 are patentable over the combination of Winick and Bhatia, that Claims 1-9, 11-16 and 18-22 are patentable over the combination of Kimura and Cipolla. Appellants respectfully submit that pending Claims 10 and 17 are patentable over the combination of Kimura, Cipolla and Olarig.

Therefore, Appellants respectfully submit that the rejections of the Claims are improper as the rejection of Claims 1, 3, 18 and 19 do not satisfy the requirements of a *prima facie* case of anticipation and the rejections of Claims 1-22 do not satisfy the requirements of a *prima facie* case of obviousness. Accordingly, Appellants respectfully submit that the rejections of Claims 1, 3, 18 and 19 under U.S.C. §102(b) and Claims 1-22 under 35 U.S.C. §103(a) is improper and should be reversed. The Appellants wish to encourage the Examiner or a member of the Board of Patent Appeals to telephone the Appellants' undersigned representative if it is felt that a telephone conference could expedite prosecution.

Respectfully submitted,
WAGNER BLECHER LLP

Dated: 11/25/2008

/John P. Wagner, Jr./
John P. Wagner, Jr.
Registration No. 35,398

Wagner Blecher LLP
123 Westridge Drive
Watsonville, CA 95076
(408) 377-0500

VIII. Appendix - Clean Copy of Claims on Appeal

1. A fan cooling system with high availability comprising:

a first fan coupled with a first motor for creating a first air flow;

a second fan coupled with a second motor for creating a second air flow;

a duct system for conveying said first air flow and said second air flow to at least one heat sink; and

a control system coupled with said first fan motor and said second fan motor.

2. The fan cooling system of Claim 1 wherein said first motor and said second motor are removably coupleable with said fan cooling system.

3. The fan cooling system of Claim 1 wherein said first motor and said second motor are configured to operate at variable speeds.

4. The fan cooling system of Claim 1 wherein said control system further comprises:

a motor performance monitoring unit configured to determine a performance metric of said first motor and a performance metric of said second motor.

5. The fan cooling system of Claim 4 wherein said motor performance monitoring unit comprises:

a first tachometer configured to determine the rotational speed of said first motor; and

a second tachometer configured to determine the rotational speed of said second motor.

6. The fan cooling system of Claim 4 wherein said motor performance monitoring unit comprises:

a current monitoring device for determining the amount of current used by said first motor; and

a second current monitoring device for determining the amount of current used by said second motor.

7. The fan cooling system of Claim 4 wherein said motor performance monitoring unit comprises:

a comparator for comparing a measured performance metric of said first motor with a pre-defined parameter and for comparing a measured performance metric of said second motor with a pre-defined parameter.

8. The fan cooling system of Claim 7 wherein said motor performance monitoring unit further comprises:

a power control subsystem; and

a controller coupled with said power control subsystem and configured to generate a command to said power control subsystem in response to a signal from said comparator.

9. The fan cooling system of Claim 8 wherein said controller causes said power control subsystem to dynamically alter the operating speed of said second fan when said performance metric of said first motor exceeds said pre-defined parameter.

10. The fan cooling system of Claim 4 wherein said motor performance monitoring unit comprises:

a state machine for determining when said performance metric of said first motor exceeds a pre-defined parameter and for automatically generating a command to a power control subsystem to dynamically alter the operating speed of said second fan.

11. A redundant fan cooling system comprising:

a plurality of variable-speed fan motors removably coupleable with said redundant fan cooling system;

a plurality of fans, each of said plurality of fans coupled respectively with one of said plurality of variable-speed fan motors;

a ducting system for conveying air flow from each of said fans to a heat dissipating device; and

a controller for dynamically changing the operating speed of at least one of said plurality of variable-speed fan motors in response to a measured performance metric.

12. The redundant fan cooling system of Claim 11 wherein said controller further comprises:

a monitoring unit configured to determine a performance metric of each of said plurality of variable-speed fan motors.

13. The redundant fan cooling system of Claim 12 wherein said monitoring unit comprises:

a current monitoring device for monitoring the amount of current used by each of said plurality of fan motors.

14. The redundant fan cooling system of Claim 12 wherein said monitoring unit comprises:

a tachometer to monitor the rotational speed of each of said plurality of variable-speed fan motors.

15. The redundant fan cooling system of Claim 11 wherein said controller further comprises:

a comparator for comparing said measured performance metric with a pre-defined parameter.

16. The redundant fan cooling system of Claim 15 wherein said controller dynamically changes the operating speed of at least one of said plurality of variable-speed fan motors when said measured performance metric exceeds said pre-defined parameter.

17. The redundant fan cooling system of Claim 11 wherein said controller further comprises:

a state machine for determining said measured performance metric exceeds a pre-defined parameter and for automatically generating a command to a power control subsystem to dynamically alter the operating speed of at least one of said plurality of variable-speed fan motors.

18. A method for providing redundant availability in a fan system comprising:

coupling each of a plurality of fan motors with a respective fan;

configuring a duct to guide air flow from said plurality of fans to a heat sink;

comparing the performance of each of said plurality of fan motors with a pre-defined parameter; and

selecting a fan motor speed for one of said plurality of fan motors based upon said comparing.

19. The method as recited in Claim 19 further comprising:

receiving a measured performance metric from a monitoring device; and using a comparator to compare said measured performance metric with said pre-defined parameter.

20. The method as recited in Claim 19 wherein said monitoring device comprises:

a current monitoring device for monitoring the amount of current used by each of said plurality of fan motors.

21. The method as recited in Claim 19 wherein said monitoring device comprises:

a tachometer to monitor the rotational speed of each of said plurality of fan motors.

22. The method as recited in Claim 18 further comprising:

operating each of said plurality of fan motors at a first operating speed;

determining that the performance of a first fan motor of said plurality of fan motors exceeds said pre-defined parameter;

disengaging said first fan motor; and

changing the operating speed of a second fan motor of said plurality of fan motors to a second operating speed.

IX. Evidence Appendix

None.

X. Related Proceedings Appendix

None.